



FY2010 Chief of Naval Operations (CNO) Environmental Awards Competition
Environmental Quality, Overseas Installation
Submission for U.S. Navy Region Center, Singapore (NRCS)



CAPT Michael D. Smith, USN
Commanding Officer

U.S. Navy Region Center, Singapore (NRCS) is located on the island nation of the Republic of Singapore (ROS) at the southern tip of the Malaysian Peninsula, one degree north of the Equator. The mission of NRCS is provide Fleet liaison between the host nation and naval, joint, or coalition military units conducting business in Singapore. NRCS provides facilities management in one of the most dynamic theaters and directly supports PACOM regional engagement and security plans, Forward Deployed Logistics Task Force Commander (CLWP/CTF-73). Including regional assignments, NRCS supports a total of 142 military members, 228 civilians, and 406 family members in an area covering 105 acres.

NRCS operations include the Sembawang facility as well as regional responsibilities in Paya Lebar Air Base and Changi Naval Base. NRCS provides shore-side and administrative support to 18 military and tenants including:

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| <ul style="list-style-type: none">• Commander, Logistics Group, Western Pacific• Military Sealift Command, Sealift Logistics Command, Far East• Fleet Industrial Supply Center, Detachment Singapore• Navy Criminal Investigative Service, Greater Southeast Asia Field Office• U.S. Naval Meteorology & Oceanographic Command, Far East Regional Office, Singapore• Ship Support Unit, Singapore• Special Boat Team Maintenance Facility• Defense Contract Management Agency• U.S. Coast Guard, Far East Detachment | <ul style="list-style-type: none">• 497th Combat Training Flight• Naval Computer and Telecommunications Area Master Station, Detachment Singapore• Navy Exchange Singapore• Defense Energy Support Center• Naval Facilities Engineering Command Far East, Singapore• Special Operations Command Pacific Logistics Support Facility• Customer Support Detachment Western Pacific• Veterinary Command, Detachment Singapore• U.S. Embassy |
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With the implementation of Environmental Management System, NRCS identified two major focus areas. They are energy savings and solid waste reduction. The motto at NRCS is “environmental savings are everyone’s responsibility” with the PWD/Environmental as lead. All tenants and commands are committed to:

- (1) Implement pollution prevention and environmental management practices
- (2) Ensure adherence to applicable policies
- (3) Emphasize reduction, reuse, and recycling
- (4) Continually review, measure, evaluate and improve
- (5) Provide outreach and partnership when possible.
- (6) Minimize the impact to mission readiness

In 2009, NRCS awarded 4 Special Projects and the first MILCON Project in the history of Singapore.

Program Summary :

Supporting all facets of operations ranging from permits and compliance to cradle-to-grave



management of hazardous materials, NRCS is committed to being a model steward in the environmental arena and provides world-class customer-focused installation and facility support to operating forces in the Pacific Area of Responsibility (AOR). Through program leadership and proactive planning efforts, NRCS ensures mission accomplishment and protection of human health through implementation of environmental management systems in everyday operations, waste management and safe drinking water. Successfully executing these potentially competing tasks requires dedicated work and innovative solutions. The main objectives of the Environmental Strategic Plan at NRCS are to integrate all regulatory requirements and compliance through:

- Promoting Pollution Prevention (P2) as an integral part of supporting mission readiness and achieving local pollution reduction goals
- Reducing environmental liabilities and protecting public health and the environment by eliminating or minimizing the volume and toxicity of hazardous substances used aboard the installation
- Actively participating and contributing to the identification, implementation and evaluation of innovative methods and technologies that will achieve DoD Measures of Merit (MOM),
- Actively integrating Environmental Management System (EMS) principles into all work processes on a continual basis

Environmental Program

Focus Areas

Radon
Air Quality
Storm Water Mgmt
Solid Waste
Water Quality
HAZMAT
Hazardous Waste
Asbestos
Wastewater
POL
Medical Waste
Pesticides
Lead Based Paint
SPCC
UST/AST
PCB
EMS

The Environmental Management System is integrated into all environmental processes by using established procedures to identify significant environmental aspects. NRCS fosters an environment that capitalizes on effective teamwork to promote and advance program objectives. The Environmental Program strongly emphasizes compliance with all shore-side environmental programs, and exceeds requirements where possible with the Overseas Environmental Baseline Guidance Document (OEBGD). Program areas include air, drinking water standards, solid and hazardous waste management, spill prevention, asbestos management, and discharge monitoring for both U.S. and host nation requirements. Other focus areas include natural/cultural resources reviews, pest management, providing training to NRCS and tenant commands, oversight of P2 program initiatives, environmental quality assessments, and implementing applicable Executive Orders (EO) and Navy policies.

Program Management

The Environmental Program consists of:

- Public Works Officer , 1 Environmental Engineer, and 2 Environmental Specialist Contractors responsible for planning and implementing a comprehensive environmental program
- Base Operating Support (BOS) contractor, who is responsible for shore-side hazardous waste and material operations. Duties include providing support to material safety

data sheet requests, processing hazardous waste, providing environmentally friendly substitutes, and minimizing the use of hazardous materials and reducing wastestreams. Performance is evaluated monthly to ensure satisfactory standards are achieved

Annual self-assessments are performed and monitored to ensure corrective actions are continuously implemented. Within the past six



years, NRCS successfully eliminated and corrected all 26 findings received in FY02. Annual evaluations provided information and feedback in a closed loop system to the program director to allow budget adjustment and best resource allocation. Root cause analysis was used to direct overall program strategic efforts and to ensure long-term sustainability of the environmental program.

For the last 2 years, the Environmental Engineer, in consultation with NAVFAC Pacific, reviewed and established an Internal Assessment Plan. In FY10, PWD refined this process to better define the requirements for all environmental areas as required in the OEBGD and established EMS checklists for each building under the Command. PWD was able to review environmental aspects and update our electronic database, and complete the required annual audit. This data will next be used in the coming years to establish a more effective monitoring system. The goal is to be transparent and allow the data be reviewed by other departments as appropriate. All renovations and new projects were reviewed based on EMS and environmental requirements and all contractors were trained prior to the start of their projects.

Orientation to Mission

Working closely with NRCS and its 18 regional tenants, the environmental team ensures EMS concepts and P2 tools are integrated down to the lowest level to support military readiness and all civil work. This has been demonstrated through cooperative screening of hazardous material purchased and materials that were transshipped throughout the region – one of the busiest logistics areas in the world. Inspection standards and compliance evaluations are strictly enforced and corrective

Breaking thru Operational Barriers

actions are tracked. Operation risk management principles are applied to all work processes to further evaluate potential impacts. All the processes (host as well as tenants) are documented in SOPs under EMS guidance together with their operational controls.

For NRCS, the best innovative solutions involve prevention by using the environmental/waste management hierarchy: first, prevent pollution at the source; then recycle and reuse. Pollution that cannot be prevented or recycled is treated in an environmentally safe manner. In order to achieve environmental objectives and long-term mission sustainability, NRCS environmental personnel review all work processes together with tenants to promote environmental awareness.

One of the waste minimization initiatives undertaken in the past two years includes strengthening our efforts in waste reduction and our Qualified Recycling Program (QRP). This latter provides the impetus to substantially

increase our recycling and waste diversion efforts. In FY10, NRCS was able to



achieve an impressive recycling/composting rate of nearly 311 pounds per person per year. Last but not least, all our buyers in FISC Contracting Department, credit card holders, and BOS contractors, are trained on Affirmative Procurement and recycling issues. As a result, NRCS is routinely educating contractors and receiving feedbacks on greening the environment issues. This type of enthusiasm and involvement has been critical to the success of the program.

Through the BOS contractor, NRCS also recycles expired oil products, antifreeze, used fuel and avoids purchase of new hazardous



materials unless needed. For the past two years, NRCS recycled 16,038 lbs of lead acid batteries, printer cartridges, and used oil. All savings realized were redirected to other unfunded environmental projects to further enhance NRCS environmental efforts.

In FY09/10 NRCS:

- Set objectives and goals to promote long-term operational sustainability on all process review and operations
- Fully evaluated all major and minor aspects of all processes at NRCS including those of the tenants
- Developed and reaffirmed 21 work processes under EMS and verified over 400 items in the Authorized Use List (AUL)
- All work was reviewed based on cost and mission benefits. Streamlined, where possible and developed corrective action/ preventive action (CA/PA) procedure to allow better oversight of all environmental aspects and deficiencies

EMS Conformity
Achieved EMS conformance with no major or minor discrepancies – First in the Navy

process of integrating environmental quality assessment into the work centers and building checklist to ensure sustainability of the program. One of the goals is to prepare for the scheduled external audit in FY12.

- Completed second annual EMS review and in the process of integrating environmental quality assessment into the work centers and building checklist to ensure sustainability of the program. One of the goals is to prepare for the scheduled external audit in FY12.
- All the required plans including overseas environmental liability and were reviewed and updated in coordination with PWD, program managers, and real estate planners
- Command was able to achieve savings through cost avoidance and well planned missions

Technical Merit

The Environmental Program's primary objective is to exceed requirements and go above and beyond basic compliance and remain customer-focused at all times. In FY09/10, NRCS did not receive any notice of violations in any program areas. The NRCS Environment Program is diverse and covers all applicable areas.

Major accomplishments and programs implemented on the shore side within the past 2 years include:

- Conducted environmental reviews for one MILCON and four Special Projects ensuring sustainability and impact mitigation measures are addressed
- Through rigorous process control, monitoring and continuous review, NRCS was able to achieve a 42% reduction (Recycled 4,480 pounds out of 10,660 pounds) in FY09 and 49% reduction of shore-side hazardous waste disposal in FY10 (Recycled 8,613 pounds out of 17,651 pounds)
- Conducted asbestos, radon and lead based paint comprehensive sampling in both Housing and Industrial areas
- Enforced freon recovery of air handling units prior to disposal
- Established procedure to continually monitor host nation sites on national monuments and world heritage web to ensure historical and cultural compliance
- Established a Memorandum of Agreement with CHPMM-PAC Laboratory for drinking water and waste testing thereby ensuring all analyses are certified to U.S. standards
- Reducing energy consumption by 13.08% using 2003 as baseline and achieving a savings of over \$41,800
- Diverted over 430 lbs of aluminum cans, 10,100 lbs of scrap, and 135,000



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lbs of paper from the solid waste stream resulting in avoided cost savings of \$3,600 and \$8,048 in revenue.

- Completed 90% solar heater panel installation of all the Bachelor and Visitor Quarters in the Housing Area. Estimated savings of over 190 MBTUs per year. On our industrial side, also completed renovation and



installed a new air condition system. The goal is to achieve a 15% energy efficiency with

this new system.

- Installed water reduction devices in all wash basins and toilets in Bldg 7-4 as part of our water reduction initiatives
- Continued to ensure installation of backflow preventors at potential cross connection points in all new connections to protect our water supply
- No notice of violation or citation from both U.S. and local standards
- Focused planning with the use of EO 12114, EMS principles and operational sustainability in all new projects and in developing mitigations
- Performed the full range of drinking water testing required by the OEBGD including coliform, inorganic chemicals, synthetic organics, total trihalomethanes, pesticides, lead and copper, etc. and verifying that our local water quality meets the Clean Water Act using the same U.S. protection standards for our sailors and personnel. Singapore is one of



the few areas that met all standards in the last Navy wide

assessment of Overseas Potable Water Systems with the Naval Inspector General Office

- Significantly increased our spill response capability. Requisitioned and put in service 2,000 feet of preventive booming equipment from the centrally funded A2R2 program. Negotiated with PSA and Royal Navy Liaison Office to enhance our joint spill response capability for U.S. Navy and MSC vessels while in port. Conducted joint exercise with British, PSA and Singapore Navy.
- Continually sought process change/source reduction projects to enhance and ensure long-term sustainability of the mission and to prevent resource depletion and avoid adverse impacts on natural assets and human health
- Ensure our MILCON project meets host nation “green” building requirements
- Exceeded expectations in providing customer environmental training and certified all appropriate personnel. This included training identified in Individual Development Plan namely: Facility Response Team Training, Pesticide Applicator Recertification, Overseas Generator Responsibilities, Spill Response Tabletop Exercise, EMS Implementation Course, and Hazardous Substance Incident Response and Management.
- Provided environmental support to 1 MICON and 4 special projects in addition to normal duties

Stakeholder Interaction

NRCS is in a very unique situation in that the command is smaller than some of the tenant commands it serves. This uniqueness allows NRCS to run the environmental program at a regional level while consolidating resources,



maximizing program effectiveness, and overcoming many challenges with one voice. NRCS creates opportunities to ensure the full implementation of the Environmental Strategic Plan and draws stakeholder involvement through increased public awareness. In FY09 and FY10, the environmental team achieved many successes, some examples follow:

- Increased training opportunities from two to five classes per year for tenants and Base Support Personnel including hazmat, spill response, EMS, and incident planning
- Enhanced environmental support for all tenant commands and visiting vessels under Seventh Fleet AOR and offered briefings to ship personnel
- Used the local newspaper – Merlion, bluescreen with CATV, command websites and rolling screens as means of disseminating special bulletins and invited participations
- Introduced and provided EMS awareness training to over 1,150 individuals and surrounding communities
- Used the Command Bulletin Boards and Commander, Navy Installation Command (CNIC) Gateway and websites to post specific pollution prevention, events, EMS information and Consumer Confidence Report to communities (public and in-house)
- Set up Environmental Fairs and EMS Information Booths at various events to promote awareness. Topics included general environmental awareness and photographs of completed environmental projects were displayed including asbestos removal, energy projects, water testing and environmental projects
- Established process to review all new host nation regulations to ensure compliance with Singapore environmental regulations

- Provided EMS awareness training to all surrounding communities including Royal Navy Liaison Office, Australian Liaison Office, New Zealand Defense Support Unit, Republic of Singapore Navy, PSA Corporation, Defense Maritime Services and Air Mobility Squadron (USAF)
- Conducted joint pesticide research project with NAMRU-2 and Singapore National Environmental Agency
- Established community outreach services and volunteer partnership programs with special events throughout the year

NRCS routinely meets with local regulatory agencies and has developed great working relationships with Singapore authorities and other nations' regional offices, co-located in our area.



Transferability

A key facet of the NRCS mission is to ensure programs are well maintained and can be successfully transitioned through change of commands and personnel.

Instructions/standard operation procedures, CA/PA plan and meticulous record keeping are used to conduct root cause analysis and as the primary means of communication to ensuring transferability of lessons learned. Self-assessments and follow-up actions are fastidiously scheduled to ensure all facilities and processes are covered and reviewed at least once a year. Continual training and a single point of contact for all environmental matters further enhance effective information dissemination. Lessons learned and pitfalls are overcome and disseminated to local commands and regional safety so they can also learn and apply appropriate corrective



actions to their programs. A copy of the CA/PA plan is also made available at the

Installation's shared drive and CNIC Gateway computer network.

Other Mission Accomplishments

Over the past several years, the NRCS environmental program has demonstrated an exceptional achievement in merging support to mission accomplishments and a successful environmental protection program. This dedication has strengthened our relationship with the host nation. With this trust, the approval time from local regulators for our Shipboard Generated Industrial Waste (SGIW) Offload Program was reduced from two weeks to mere hours. Furthermore, we are in the process of negotiating the possibility of recycling used oil for another regional location.

Excelling as a Force Multiplier

In the past two years, the Environmental Program supported over 122 USN and USNS ships and processed over 344,000 lbs of shipboard hazardous waste and biomedical waste for local disposal at no cost to the ships. The SGIW program allows local treatment and disposal of HAZMAT and biomedical waste. By eliminating the need to retrograde these materials to Japan or CONUS, the programs enhanced personnel safety and minimized spills. More importantly, this program has greatly enhanced the combat effectiveness of CTF-73 and CTF-74 by allowing ships and submarines to properly manage waste and remain excellent stewards of the environment. NRCS continues to build on the success of our SGIW and Biomedical Waste Offload Programs. An inventory of 5K shop towels is pre-staged at NRCS to service any USN vessels requesting replacement.

Other noteworthy milestones for the past year include:

- Continued to dialogue with National Enforcement Agency to negotiate the possibility of recycling used oil from Diego Garcia to further promote pollution prevention efforts.
- Completed an external audit of five treatment and disposal facilities with the Defense Logistics Agency to ensure regulatory compliance with U.S. and host nation standards. This could potentially allow other surveyed ports to offload shipboard generated wastes and could greatly enhance U.S. Fleet's capability in the future.
- Liaised with Hong Kong Environmental Protection Department to continue dialog on biomedical disposal and offload of flammable waste.



Additionally, our noteworthy Fleet Support programs do not sacrifice shore environmental compliance efforts resulting in increased regulatory scrutiny or operating expense. All the program areas are reviewed based on full life-cycle costs of the process prior to implementation thereby ensuring continued savings into the future.